



TOWN OF ANDOVER, MASSACHUSETTS PLANT & FACILITIES DEPARTMENT

TOWN OFFICES
36 Bartlet Street
Andover, MA 01810
Tel: (978) 623-8280
Fax: (978) 623-8290

JOSEPH R. PIANTEDOSI CPE
DIRECTOR

Cliff Sullivan
Department of Energy Resources
Green Communities Division
100 Cambridge Street, 10th Floor
Boston, MA 02114


RE: Criteria 3: Energy Use Baseline / Reduction Plan
Documentation in support of Green Community Designation

Dear Mr. Sullivan,

Attached please find documents which satisfy Criteria 3 of the Green Communities Designation Form.

Please call me should you have any problems with our application.

Sincerely,



Joseph R. Piantedosi

☐ CRITERIA 3: ENERGY USE BASELINE / REDUCTION PLAN

Description of Criteria

Establish an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting, and put in place a comprehensive program designed to reduce this baseline by 20 percent within 5 years of initial participation in the program.

Documentation

Please provide a copy of the energy use baseline inventory completed for all municipally owned and operated buildings, vehicles, street lights and traffic lights and a detailed plan for reducing fossil fuel consumption by 20% in 5 years **(all required)**.

- ☐ Identify inventory tool used: School Dude Utility Direct
- ☐ Provide the baseline year used: FY2008
- ☐ Provide documentation of results of inventory - Attached
- ☐ Copy of plan / specific Actions to be implemented and timeline with milestones to achieve required energy reductions- Attached
- ☐ Documentation that both the general government and school district have adopted the energy reduction plan – Letters attached



TOWN OF ANDOVER

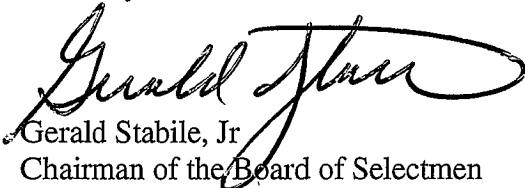
TOWN OFFICES

36 Bartlet Street
Andover, MA 01810
(978) 623-8200
www.andoverma.gov

May 10, 2010

On Monday May 3, 2010 the Board of Selectmen voted unanimously to adopt the Fuel Efficient Vehicle Policy effective May 4, 2010. Also, at the same time, the Board of Selectmen voted unanimously to accept the Energy Reduction Action Plan.

Sincerely,


Gerald Stabile, Jr.
Chairman of the Board of Selectmen

ANDOVER PUBLIC SCHOOLS



36 Bartlet Street
Andover, MA 01810
(978) 623-8501
FAX (978) 623-8505

SCHOOL COMMITTEE:

Dennis F. Forgue, Chair
Ann W. Gilbert, Secretary
David A. Birnbach
Paula Colby-Clements, Esq.
Richard J. Collins

Claudia L. Bach, Ed.D
Superintendent of Schools
cbach@aps1.net

May 11, 2010

On Tuesday May 11, 2010 the School Committee voted unanimously to adopt the Fuel Efficient Vehicle Policy effective May 12, 2010. Also, at the same time, the School Committee voted unanimously to accept the Energy Reduction Action Plan.

Sincerely,

Dennis Forgue
Chair of the School Committee

Town of Andover
Energy Reduction Plan
Criteria 3

- I Energy Reduction Plan
- II Attachment A – Energy Conservation Opportunities Identified Through Audits
- III Attachment B – Energy Reduction Plan for FY2009-FY2013
- IV Attachment C - Energy Reduction Plan for FY2011-FY2013
- V Attachment D - Andover Green Advisory Board
- VI Attachment E – Building Energy Usage Reports

**DOER GREEN COMMUNITIES PROGRAM
Town of Andover, Massachusetts
Energy Reduction Action Plan**

I. INTRODUCTION:

Background

The Town of Andover is a community with a population of 32,000 in Essex County. The community has ten (10) school buildings and four (4) major town buildings of various ages and designs as well as a Town Yard, a Water Treatment Plant, a municipal cemetery and numerous athletic fields and a half dozen lesser structures. There are approximately 154 vehicles of which 39 are categorized as non-exempt by our Fuel Efficient Vehicle Policy

For the past 12 years, Andover has been committed to implementing energy conservation measures and energy efficiency projects in order to reduce energy use for the Town. Since 2007, it has won a number of awards for energy efficiency including the Commonwealth of Massachusetts "Leading by Example " award (2007) and the Northeast Energy Efficiency Partnership "Leadership in Commitment to Energy Efficiency " award (2009). The Town of Andover Plant and Facilities department was recognized in the "Guide to Operating and Maintaining Energy Smart Schools" published by the US Department of Energy (2009).

Measures that have been taken include forming an Energy Task Force comprised of municipal officials. This task force has educated employees about energy conservation, and has conceptualized, planned and executed numerous building and other upgrades. In 2009 a citizen led Green Advisory Board (AGAB) was established with a municipal liaison to focus on the research and promotion of sustainable practices and provide input to various boards and town departments. The application for the AGAB and their mission are included as Attachment D. This Board has been instrumental in assisting Andover's effort to become a Green Community.

Since 2007, Andover Plant and Facilities Department has compiled all municipal energy use and is using School Dude Utility Direct software to track the usage and cost. The Department recently received training on the DOER MassEnergy Insight software and intends to begin using it in FY2011.

Fiscal year 2008 has been established as the baseline year with 75,729 mmbtu usage. The Town plans to reduce energy usage by at least 15,146 mmbtu, or 20%. Energy audits of all schools and major town buildings have been completed by energy auditors employed by National Grid or the Department of Energy Resources (DOER) within the past 2 years. These audits have identified measures that will reduce energy usage by more than the 20%, and form the basis of this Energy Reduction Action Plan.

Becoming a Green Community is a good way to document, formalize, and finance our energy usage reduction efforts.

The Town is currently in the planning process of building a 99,000 square foot 680 student energy efficient elementary school to replace the current Bancroft Elementary school. The Feasibility Study has been completed and our plan is to begin the construction in early 2011 using MA-CHPS guidelines. We plan on applying for a Green Community Grant to enhance the energy efficiency of this project.

II. RESULTS OF ENERGY USE BASELINE INVENTORY:

A. Inventory Tool Used:

Andover uses School Dude Utility Direct software

B. Existing municipal energy use:

For fiscal year 2008, the Town's baseline year, municipal energy use was

Municipal Buildings	61,547 mmbtu
Vehicles	9,934 mmbtu
Street and Traffic Lighting	4,248 mmbtu

C. Existing efficiency measures implemented in the last two (2) years:

During fiscal years 2009 and 2010, ending June 30, 2010, the Town has completed the following major energy efficiency improvement measures:

		Annual Savings
Town Office Building	Lighting upgrade	207,351 kwh - 707 mmbtu
Town Office Building	New RTUs have CO2 control	51,909 kwh - 177 mmbtu
Andover High School	Lighting upgrade	403,909 kwh - 1378 mmbtu
Andover High School	CO2 control in 30 classrooms	part of 300 k kwh below
Andover High School	CO2 controls in Gyms	300,000 kwh - 1024 mmbtu
Memorial Hall Library	Lighting upgrade	103,466 kwh - 353 mmbtu
West Middle School	Lighting upgrade	103,990 kwh - 355 mmbtu
Street Lights	Turned off 483	254,984 kwh - 870 mmbtu
Total savings		1,425,609 kwh - 4865 mmbtu

D. Areas of least efficiency/greatest waste:

Energy audits of all Town and School buildings have identified that the Public Safety Center HVAC system as the best target for energy savings. The rooftop VAV units restrict minimum airflow setpoints at zone reheat VAV boxes, resulting in excessive heating and cooling loads. Providing a supply air bypass to return capability will enable the zone reheat VAV boxes to

operate as non-reheat VAV boxes, eliminating the reheat requirement. This is included in the retro commissioning action item of our Energy Reduction Action Plan.

E. Areas that can be most easily addressed:

It is our experience that lighting upgrades are the most easily addressed and produce the most sizeable energy savings measures. They are generally massive efforts, affecting the entire building, and take many weeks to complete. However, National Grid has proven to be an excellent partner and provided excellent planning and support for facilitation of these projects.

III. SUMMARY OF ENERGY AUDITS:

All Schools and major Town Buildings have had energy audits performed within the past two years. The same energy efficiency opportunities were identified for all buildings. Retro-commissioning, lighting upgrades, vending machine controls and computer power management have been recommended for every facility however, estimated energy and costs savings vary from building to building. A number of lighting upgrades have been completed and we expect to implement all of the audit recommendations within the next three (3) years. As mentioned previously these audit form the basis of our Energy Reduction Action Plan.

IV. SUMMARY OF FOSSILE FUEL REDUCTION MEASURES:

A. Overview of short and long term goals:

The Town of Andover has been aggressively pursuing energy conservation opportunities for many years and as mentioned previously has received a number of awards for our energy conservation efforts. The proposed energy conservation plan which is Attachment B of this proposal details the five-year plan beginning with FY 2008 and ending with FY 2013. In the short term, the Town will perform the energy reduction activities outlined on **Attachment A** which will exceed the 20% energy usage reduction beginning with FY 2008. In the longer term, the Town will continue to aggressively pursue energy conservation opportunities in a continuing effort to reduce energy usage. As an example, LED retrofits for exterior lighting applications are expected to become financially attractive within the next few years.

The Plant and Facilities Department provides utility tracking and project management for the implementation of energy conservation measures, and is responsible for monitoring and oversight after the installations are complete to ensure proper maintenance. The Department maintains all buildings systems, and is well staffed with licensed professionals, software and experience. The Town finances the Plant and Facilities Department in this capacity as steward of all buildings, Town and School.

V. FOSSIL FUEL ENERGY REDUCTION MEASURES:

A. Short-term energy reduction goals – getting to 20% reduction in 5 years:

i. **Municipal and School Buildings:**

The energy reduction opportunities, including scheduling and associated costs are listed on **Attachments A, B, and C.**

Attachment A shows the energy usage reduction opportunities identified by building energy audits. The total savings are listed as equivalent kwh, but include btu fuel savings. The column "Ngrid Contributions" includes both estimated values, and actual values for the lighting upgrade projects recently completed.

Attachment B is a schedule of completed and planned energy reduction measures over the five year period 2009 – 2013 whereby the Town plans to reduce energy usage by 20% of baseline year 2008 usage.

Attachment C is a schedule dealing with the remaining three years of the five year plan. It identifies the anticipated energy savings, in kwh and dollars, as well as the estimated project cost to Andover. The estimated project costs and estimated contributions from our utility providers, identified as Ngrid are from **Attachment A.**

A major construction project for replacement of the Bancroft Elementary School is just beginning the design phase. Cost savings cannot be known at this time, but will be available when the design is completed. The Energy Task Force, operating within the Plant and Facilities office intends to use proven state of the art energy efficiency methods.

ii. **Vehicles:**

The Town has had a program since 2006 to purchase fuel efficient vehicles. Non Public Safety full and mid-size Sport Utility vehicles have been replaced with Ford Escapes including a Ford Escape hybrid. A number of full size half ton 4X4 pickup trucks were replaced with smaller more fuel efficient Chevrolet Colorado pickup trucks. Three utility Chevrolet Astro (trades) vans have been replaced with the new Ford fuel efficient Transit Connect. These vans were also equipped with optional aluminum instead of the conventional steel shelving to save on overall vehicle weight. New half ton 4X4 pickup trucks were replaced with new fuel efficient Chevrolet and Ford models that also comply with the Green Communities fuel-efficiency guidelines.

Our plan over the next five years is to continue replacing all of our smaller work vans and trucks with fuel efficient models that are similar to our purchases since 2006. We will replace our Public Safety fleet with fuel efficient vehicles as soon they become available. We also plan on replacing the Town Managers full size sedan with a Ford Fusion Hybrid or similar vehicle.

Attachment D is a vehicle inventory of non-exempt vehicles illustrating the fiscal year replacement plan. This inventory is also included in the Andover Fuel Efficient Vehicle Policy.

iii. **Street and Traffic Lighting:**

Nearly all Town owned traffic lights were converted to LED a few years go. One intersection remains to be converted but we are planning on converting this in the current fiscal year.

Street lights in Andover are owned by National Grid. The Andover Department of Public Works has had NGrid turn off 609 street lights this fiscal year. There are no plans to turn off additional street lights at this time however; the subject will be revisited in the coming months

iv. **Municipally owned and operated clean renewable or alternative energy installations:**

The Town has recently installed a 2kw photovoltaic array at the Doherty Middle School. The installation was made for educational purposes, and the power generated is used by the school. Extensive educational software provided with the installation is available to the three (3) Middle Schools and Andover High School, providing teachers at each of these locations with the same educational opportunities as if they had their own array. This is the Town's only clean renewable or alternative energy installation however, additional installations will be considered in the near future should sufficient grant funding become available.

v. **Total projected fossil fuel energy reduction:**

Attachment B lists the projected annual energy usage reduction for each of the fiscal years 2009 through 2013. The total projected energy usage reduction is 15,146 mmbtu, a 21.9% reduction from the usage of base year, 2008.

B. Measurement and Verification Plan for Projected Reductions:

All energy usages are metered and are read monthly at all municipal buildings and schools. The Plant and Facilities Department monitors the monthly usage and cost which are entered and tracked for each building using School Dude Utility Direct energy tracking software. The results of energy conservation efforts are reflected in the month to month and year to year energy usage comparisons. Metered aggregate building energy usage reductions will be the principal verification of energy savings measures. Sub-metering is not practical for most of the planned energy reduction measures, for instance, lighting upgrades throughout a building, retro-commissioning, ventilation controls, etc. Direct verification of savings attributed to an energy savings measure cannot, in general, be made. For instance, we know the energy savings that will result from replacing one lamp with another, per hour of operation, but we don't know exactly how many hours it will operate. In addition to this uncertainty, other energy savings measures may be implemented during the same year, making it difficult to determine exactly how much of the observed savings is due to one measure or the other. It is also important to note that School Dude Utility Direct allows us to factor the Heating Degree Days and Cooling Degree Days into these savings.

Every gallon of diesel and gasoline motor vehicle fuel used is measured and recorded. Fuel savings from energy conservation measures such as idling restrictions, more efficient

vehicles; better trip planning, etc. will result in less fuel being consumed. However, the savings may not show up in the total fuel usage numbers because the amount of vehicle fuel used in any given year is strongly influenced by snow and ice removal and summer construction work. Vehicle fuel energy reduction will be measured by the reduced energy usage of the vehicles identified in the non-exempt vehicles inventory.

C. Long-term energy reduction goals – Beyond 5 years

The Town of Andover will continue with its efforts to reduce its energy usage. We anticipate that by 2013 we will achieve and/or surpass our 20% overall goal. However, new technologies are constantly being developed and we intend to stay abreast of new energy conservation opportunities and to implement them wherever they are economically feasible. We will be evaluating large scale solar photovoltaic installations, and related energy provider service contracts. Long term we will investigate the feasibility of using LED lighting and more energy efficient vehicles. Andover will be honored to call itself a Green Community and will be enthusiastically seeking continuous energy improvement measures.

VI. SOURCES OF INFORMATION:

List of Resources:

Copies of the following Energy Audits can be made available:

Andover High School

B2Q Associates, Inc. for National Grid, March 25, 2008
Energy Management Consultants, Inc. for National Grid, February 27, 2008
Solar Hot Water Audit, ADI for DOER, December 2008

Doherty Middle School

American Development Institute for DOER, February 12, 2009
Energy Management Consultants, Inc. for National Grid, September 17, 2009

High Plain Elementary / Wood Hill Middle Schools

American Development Institute for DOER, February 12, 2009

Public Safety Center

B2Q Associates for National Grid, February 20, 2008
Energy Management Consultants, Inc. for National Grid, December 27, 2009
Geothermal Feasibility Study, ADI for DOER, March 26, 2009
Solar Hot Water Audit, ADI for DOER, December 2008

Memorial Hall Library

B2Q Associates, Inc. for National Grid, March 3, 2008
Energy Management Consultants, Inc. for National Grid, January 19, 2009

Sanborn Elementary School

American Development Institute for DOER, March 17, 2009
Energy Management Consultants, Inc. for National Grid, November 22, 2009

Shawsheen Elementary School

Energy Management Consultants, Inc. for National Grid, December 8, 2009

South Elementary School

American Development Institute for DOER, February 12, 2009

Energy Management Consultants, Inc. for National Grid, December 8, 2009

Town House

B2Q Associates, Inc. for National Grid, April 8, 2008

Energy Management Consultants, Inc. for National Grid, December 27, 2009

Town Offices

B2Q Associates, Inc. for National Grid, March 10, 2008

Energy Management Consultants, Inc. for National Grid, February 23, 2008

West Elementary School

American Development Institute for DOER, March 17, 2009

West Middle School

American Development Institute for DOER, March 17, 2009

Energy Management Consultants, Inc. for National Grid, May 1, 2009

Contacts:

This document was prepared by the staff of the Town of Andover's Plant and Facilities Department. All inquiries should be addressed to

Joseph Piantedosi, Director of Plant and Facilities Department
Andover Town Offices
36 Bartlet Street
Andover, MA 01810

Mr. Piantedosi may also be contacted at

Telephone	978 623-8281
Fax	978 623-8290
Email	jpiantedosi@andoverma.gov

TOWN OF ANDOVER, MA

ENERGY REDUCTION ACTION PLAN

ATTACHMENT A

ENERGY CONSERVATION OPPORTUNITIES IDENTIFIED THROUGH AUDITS

	Total Savings (kwh)	Total Savings(mmBtu)	Energy + Maint Savings (\$)	Cost Estimate	Ngrid Contribution	Andover Cost	Andover Payback (Yrs)
Andover High School:							
Lighting Upgrade ⁽¹⁾	403,909	1,378	\$73,907	\$442,076	\$176,830	\$265,246	3.6
Demand Control Ventilation ⁽¹⁾	829,164	2,829	\$64,158	\$97,626	\$11,200	\$86,426	1.3
Vending Machine Controls	16,200	55	\$2,155	\$1,800	\$500	\$1,300	0.6
Kitchen Hood Controls	1,468	5	\$1,920	\$16,800	\$7,560	\$9,240	4.8
BAS Retrocommissioning	178,480	609	\$14,475	\$33,520	\$14,634	\$18,886	1.3
Low cost Retrocommissioning	118,071	403	\$10,148	\$5,000	\$2,250	\$2,750	0.3
Premium Motor Upgrade	1,228	4	\$163	\$2,004	\$525	\$1,479	9.1
Bancroft Elementary School: This School is being replaced							
Collins Center:							
Lighting Upgrade	---	---	---	---	---	---	---
Add Elec Heat Controls	---	---	---	---	---	---	---
Doherty Middle School:							
Lighting Upgrade	77,902	266	\$13,054	\$78,913	\$18,085	\$60,828	4.7
Retro-Commissioning	8,030	27	\$3,289	\$25,000	\$0	\$25,000	7.6
High Plains/Wood Hill:							
Lighting Upgrade	31,028	106	\$4,274	\$26,560	\$6,480	\$20,080	4.7
Motion Sensors	8,213	28	\$1,131	\$6,320	\$2,700	\$3,620	3.2
Retro-Commissioning	14,611	50	\$4,429	\$35,280	\$0	\$35,280	8.0
Variable Frequency Drives	27,559	94	\$3,796	\$13,500	\$6,600	\$6,900	1.8
Sanborn Elementary School							
Lighting Upgrade	67,525	230	\$11,265	\$47,813	\$12,870	\$34,943	3.1
Motion Sensors	878	3	\$142	\$2,340	\$600	\$1,740	12.3
Demand Control Ventilation	12,925	44	\$6,571	\$45,000	\$0	\$45,000	6.8
Retro-Commissioning	6,450	22	\$2,079	\$5,000	\$0	\$5,000	2.4
Shawsheen Elementary School:							
Lighting Upgrade	22,698	77	\$4,004	\$22,213	\$6,820	\$15,393	3.8
South Elementary School:							
Lighting Upgrade	106,300	363	\$17,979	\$69,513	\$19,190	\$50,323	2.8
Motion Sensors	3,218	11	\$490	\$2,340	\$1,000	\$1,340	2.7
Retro-Commissioning	4,338	15	\$2,030	\$13,160	\$0	\$13,160	6.5
Variable Frequency Drives	9,186	31	\$1,399	\$10,500	\$4,500	\$6,000	4.3

TOWN OF ANDOVER, MA
ENERGY REDUCTION ACTION PLAN
ATTACHMENT A

ENERGY CONSERVATION OPPORTUNITIES IDENTIFIED THROUGH AUDITS

	Total Savings (kwh)	Total Savings(mmbtu)	Energy + Maint Savings (\$)	Cost Estimate	Ngrid Contribution	Andover Cost	Andover Payback (Yrs)
West Elementary School:							
Lighting Upgrade	14,066	48	\$2,290	\$8,420	\$1,680	\$6,740	2.9
Motion Sensors	3,042	10	\$495	\$1,640	\$700	\$940	1.9
Demand Control Ventilation	24,941	85	\$12,348	\$69,000	\$0	\$69,000	5.6
Retro-Commissioning	19,138	65	\$6,106	\$9,500	\$0	\$9,500	1.6
Variable Frequency Drives	49,529	169	\$8,064	\$44,800	\$11,200	\$33,600	4.2
West Middle School:							
Lighting Upgrade ⁽¹⁾	103,990	355	\$17,002	\$74,878	\$38,393	\$36,485	2.1
Demand Control Ventilation	31,420	107	\$17,809	\$66,000	\$0	\$66,000	3.7
Retro-Commissioning	12,244	42	\$4,659	\$11,000	\$0	\$11,000	2.4
Variable Frequency Drives	16,674	57	\$2,741	\$14,700	\$3,800	\$10,900	4.0
Memorial Hall Library:							
Lighting Upgrade ⁽¹⁾	103,466	353	\$16,328	\$74,003	\$39,375	\$34,628	2.1
Demand Control Ventilation	68,240	233	\$5,191	\$13,616	\$5,446	\$8,170	1.6
BAS Retrocommissioning	93,937	321	\$7,224	\$19,625	\$8,831	\$10,794	1.5
Low cost Retrocommissioning	13,754	47	\$1,242	\$500	\$225	\$275	0.2
Multi zone to VAV conversions	67,344	230	\$6,037	\$36,883	\$4,800	\$32,083	5.3
Variable Frequency Drives	3,826	13	\$455	\$4,227	\$1,500	\$2,727	6.0
Premium Motor Upgrade	1,162	4	\$138	\$1,428	\$450	\$978	7.1
Boiler Retrofit	113,834	388	\$6,603	\$30,100	\$0	\$30,100	4.6
Computer Power Management	2,500	9	\$298	\$500	\$0	\$500	1.7
Public Safety Center:							
Lighting Upgrade	64,321	219	\$10,538	\$41,993	\$9,265	\$32,728	3.1
Vending Machine Controls	3,240	11	\$404	\$360	\$100	\$260	0.6
BAS Retrocommissioning	457,872	1,562	\$29,949	\$21,500	\$9,675	\$11,825	0.4
Low cost Retrocommissioning	76,937	263	\$1,982	\$5,520	\$1,000	\$4,520	2.3
Demand Control Vent in Mtg Rm ⁽¹⁾	51,909	177	\$4,366	\$5,658	\$0	\$5,658	1.3
Seal hose tower with door	19,373	66	\$1,057	\$2,700	\$0	\$2,700	2.6

ENERGY REDUCTION ACTION PLAN

ATTACHMENT A

ENERGY CONSERVATION OPPORTUNITIES IDENTIFIED THROUGH AUDITS

	Total Savings (kwh)	Total Savings(mmBtu)	Energy + Maint Savings (\$)	Cost Estimate	Ngrid Contribution	Andover Cost	Andover Payback (Yrs)
Street Lights:							
Turn off 609 street lights ⁽¹⁾	254,984	870					
Town House:							
Lighting Upgrade	18,664	64	\$2,854	\$8,235	\$2,040	\$6,195	2.2
Demand Control Ventilation	45,559	155	\$3,573	\$24,317	\$5,710	\$18,607	5.2
BAS Retrocommissioning	32,717	112	\$2,063	\$5,900	\$0	\$5,900	2.9
Low cost Retrocommissioning	3,595	12	\$241	\$500	\$0	\$500	2.1
Computer Power Management	250	1	\$28	\$0	\$0	\$0	0.0
Town Offices:							
Lighting Upgrade ⁽¹⁾	207,351	707	\$35,073	\$172,577	\$69,031	\$103,546	3.0
Retro-Commissioning	107,340	366	\$8,898	\$24,760	\$11,142	\$13,618	1.5
Low cost Retrocommissioning	12,450	42	\$1,078	\$1,000	\$450	\$550	0.5
Computer Power Management	12,500	43	\$1,375	\$500	\$0	\$500	0.4
TOTAL SAVINGS	4,061,550	13,858	\$461,365	\$1,798,618	\$517,157	\$1,281,461	2.8
Less Completed Projects	1,425,609	4,864	\$146,675	\$769,192	\$323,629	\$460,956	
TOTAL TO BE COMPLETED	2,612,974	8,915	\$314,690	\$1,029,426	\$193,528	\$820,505	2.6

⁽¹⁾ These projects have been completed

TOWN OF ANDOVER
ENERGY REDUCTION ACTION PLAN
Attachment B

ENERGY REDUCTION PLAN SCHEDULE for FY2009-FY2013

	Total Savings (kwh)	Total Savings (mmbtu)	FY2008 BASE YEAR	FY2009 Savings (mmbtu)	FY2010 Savings (mmbtu)	FY2011 Savings (mmbtu)	FY2012 Savings (mmbtu)	FY2013 Savings (mmbtu)
Andover High School:								
Lighting Upgrade	403,909	1,378.1		1,378				
Demand Control Ventilation	829,164	2,829.1			1,024	1,806		
Vending Machine Controls	16,200	55.3				55		
Kitchen Hood Controls	1,468	5.0						5
BAS Retrocommissioning	178,480	609.0					609	
Low cost Retrocommissioning	118,071	402.9					403	
Premium Motor Upgrade	1,228	4.2						4
Bancroft Elementary School: Replace School								
Collins Center:								
Lighting Upgrade	---	---						
Add Elec Heat Controls	---	---						
Doherty Middle School:								
Lighting Upgrade	77,902	265.8				266		
Retro-Commissioning	8,030	27.4						27
High Plains/Wood Hill:								
Lighting Upgrade	31,028	105.9					106	
Motion Sensors	8,213	28.0						28
Retro-Commissioning	14,611	49.9						50
Variable Frequency Drives	27,559	94.0					94	
Sanborn Elementary School								
Lighting Upgrade	67,525	230.4				230		
Motion Sensors	878	3.0						3
Demand Control Ventilation	12,925	44.1					44	
Retro-Commissioning	6,450	22.0					22	
Shawsheen Elementary School:								
Lighting Upgrade	22,698	77.4						
South Elementary School:								
Lighting Upgrade	106,300	362.7				363		
Motion Sensors	3,218	11.0						11
Retro-Commissioning	4,338	14.8						15
Variable Frequency Drives	9,186	31.3						31
West Elementary School:								
Lighting Upgrade	14,066	48.0				48		
Motion Sensors	3,042	10.4				10		
Demand Control Ventilation	24,941	85.1						85
Retro-Commissioning	19,138	65.3						65
Variable Frequency Drives	49,529	169.0						169

TOWN OF ANDOVER
ENERGY REDUCTION ACTION PLAN
Attachment B

ENERGY REDUCTION PLAN SCHEDULE for FY2009-FY2013

	Total Savings (kwh)	Total Savings (mmbtu)	FY2008 BASE YEAR	FY2009 Savings (mmbtu)	FY2010 Savings (mmbtu)	FY2011 Savings (mmbtu)	FY2012 Savings (mmbtu)	FY2013 Savings (mmbtu)
West Middle School:								
Lighting Upgrade	103,990	354.8			355			107
Demand Control Ventilation	31,420	107.2						42
Retro-Commissioning	12,244	41.8						57
Variable Frequency Drives	16,674	56.9						
Memorial Hall Library:								
Lighting Upgrade	103,466	353.0		353				233
Demand Control Ventilation	68,240	232.8						321
BAS Retrocommissioning	93,937	320.5						
Low cost Retrocommissioning	13,754	46.9				47		
Multi zone to VAV conversions	67,344	229.8						
Variable Frequency Drives	3,826	13.1			230			13
Premium Motor Upgrade	1,162	4.0						4
Boiler Retrofit	113,834	388.4						388
Computer Power Management	2,500	8.5						9
Public Safety Center:								
Lighting Upgrade	64,321	219.5			219			11
Vending Machine Controls	3,240	11.1						
BAS Retrocommissioning	457,872	1,562.3			1,562			
Low cost Retrocommissioning	76,937	262.5			263			
Demand Control Vent in Mtg Rm	51,909	177.1			177			
Seal hose tower with door	19,373	66.1			66			
Street Lights:								
Town House:								
Lighting Upgrade	18,664	63.7			64			
Demand Control Ventilation	45,559	155.4					155	
BAS Retrocommissioning	32,717	111.6					112	
Low cost Retrocommissioning	3,595	12.3					12	
Computer Power Management	250	0.9						1
Town Offices:								
Lighting Upgrade	207,351	707.5		707				
Retro-Commissioning	107,340	366.2					366	
Low cost Retrocommissioning	12,450	42.5					42	
Computer Power Management	12,500	42.7						43
Total Savings 2009-2013 in Kwh	4,061,550	13,858.0						
Expected savings								
Yearly usage mmbtu			75,729	2,439	2,426	5,193	2,013	1,711
Annual Saving, mmbtu				70,542	65,355	62,929	57,737	55,724
Remainder to goal, mmbtu				5,187 ⁽¹⁾	2,426	5,193	2,013	1,711
			15,146	9,959	7,533	2,340	328	-1,383

⁽¹⁾ For FY 2009 The actual savings was much higher (5187) than expected due to other conservation measures taken

TOWN OF ANDOVER ENERGY REDUCTION ACTION PLAN

Attachment C

ENERGY REDUCTION PLAN SCHEDULE: FY2011 To FY2013

	FY 2011 mmbtu savings	Energy + Maint Savings (\$)	Andover Cost	FY2012 mmbtu savings	Energy + Maint Savings (\$)	Andover Cost	FY 2013 mmbtu savings	Energy + Maint Savings (\$)	Andover Cost
Andover High School:									
Lighting Upgrade	1,806	\$64,158	\$86,426						
Demand Control Ventilation	55	\$2,155	\$1,300						
Vending Machine Controls									
Kitchen Hood Controls									
BAS Retrocommissioning				609	\$14,475	\$18,886	5	\$1,920	\$9,240
Low cost Retrocommissioning				403	\$10,148	\$2,750			
Premium Motor Upgrade							4	\$163	\$1,479
Bancroft Elementary School: Replace School									
Collins Center:									
Lighting Upgrade									
Add Elec Heat Controls									
Doherty Middle School:									
Lighting Upgrade	266	\$13,054	\$60,828						
Retro-Commissioning							27	\$3,289	\$25,000
High Plains/Wood Hill:									
Lighting Upgrade				106	\$4,274	\$20,080			
Motion Sensors									
Retro-Commissioning							28	\$1,131	\$3,620
Variable Frequency Drives				94	\$3,796	\$6,900	50	\$4,429	\$35,280
Sanborn Elementary School									
Lighting Upgrade	230	\$11,265	\$34,943						
Motion Sensors									
Demand Control Ventilation							3	\$142	\$1,740
Retro-Commissioning				44	\$6,571	\$45,000			
Shawsheen Elementary School:				22	\$2,079	\$5,000			
Lighting Upgrade									
South Elementary School:									
Lighting Upgrade	363	\$17,979	\$50,323						
Motion Sensors									
Retro-Commissioning							11	\$490	\$1,340
Variable Frequency Drives							15	\$2,030	\$13,160
West Elementary School:							31	\$1,399	\$6,000
Lighting Upgrade	48	\$2,290	\$6,740						
Motion Sensors	10	\$495	\$940						
Demand Control Ventilation							85	\$12,348	\$69,000
Retro-Commissioning							65	\$6,106	\$9,500
Variable Frequency Drives							169	\$8,064	\$33,600

West Middle School:									
Lighting Upgrade									
Demand Control Ventilation									
Retro-Commissioning									
Variable Frequency Drives									
Memorial Hall Library:									
Lighting Upgrade									
Demand Control Ventilation									
BAS Retrocommissioning									
Low cost Retrocommissioning									
Multi zone to VAV conversions									
Variable Frequency Drives									
Premium Motor Upgrade									
Boiler Retrofit									
Computer Power Management									
Public Safety Center:									
Lighting Upgrade									
Vending Machine Controls									
BAS Retrocommissioning									
Low cost Retrocommissioning									
Demand Control Vent in Mtg Rm									
Seal hose tower with door									
Street Lights:									
Town House:									
Lighting Upgrade									
Demand Control Ventilation									
BAS Retrocommissioning									
Low cost Retrocommissioning									
Computer Power Management									
Town Offices:									
Lighting Upgrade									
Retro-Commissioning									
Low cost Retrocommissioning									
Computer Power Management									
mmbtu savings									
Yearly usage mmbtu									
Remainder to goal, mmbtu									

Summary:	Cost to Andover	\$820,505
	Payback period in years	2.6

ATTACHMENT D

AGAB Mission

The mission of "Andover Green" Advisory Board (AGAB) is to provide support and advice, which contribute to practical environmental solutions to various town boards and town departments in Andover. Through outreach, technical assistance, research and advocacy, the Greening Andover Board will promote increased use of renewable energy and resources, reduction of solid waste, conservation of energy and natural resources, prevention of pollution and improvement of personal and community health.

The Advisory Board will accomplish this mission in a twofold way:

- to provide ongoing expertise to appointed town boards, committees and departments on matters of sustainability; and
- second, to facilitate communication, education, collaboration and outreach among the various sectors, organizations, departments, community groups and institutions that have an interest in Andover's Sustainability.

Andover Green Advisory Board

In collaboration with various grassroots efforts, the Andover CDP invites citizens to form the Andover Green Advisory Board. The Advisory Board will focus on promoting sustainable practices and provide input to various boards and town departments. Many groups in Andover have initiatives already underway to help move Andover toward a more sustainable future. The Town government has both a participatory role as a user of energy and land as well as a leadership role in its function of setting standards for future development.

Mission:

The mission of "Andover Green" Advisory Board (AGAB) is to provide leadership and contribute practical solutions. Through outreach, technical assistance, policy promotion and research, the Greening Andover Commission will promote increased use of renewable energy and resources, reduction of solid waste, conservation of energy and natural resources, prevention of pollution and improvement of personal and community health. The Advisory Board will accomplish this mission in a twofold way: to provide ongoing expertise to appointed boards and committees on matters of sustainability; and second, to facilitate communication, collaboration and outreach among the various sectors, organizations, departments, community groups and institutions that have an interest in Andover's Sustainability.

Priority Topics

The Advisory Board will promote sustainable choices and practices, including a focus on energy and resource use, protection of air, water, and land resources, the prevention of pollution and improvement of community health and increasing general environmental awareness. The following is a short list of some of the topics the AGAD will seek to investigate:

Developing Town bylaws	Energy conservation
Transportation	Alternative energy
Air quality	LEED construction
Street trees	Open space
Water protection	Buy local campaigns
Water conservation and supply	Pesticide reduction/organic land management
Business sector initiatives	Waste reduction strategies

Over the course of the next several months, the Town of Andover will seek to establish Andover's first Green Advisory Board. In order to be considered for the advisory board, please fill out the attached talent bank form and email it to planning@andoverma.gov or mail a copy to:

Paul Materazzo
Director of Planning
Community Development & Planning
36 Bartlet Street
Andover, MA 01810

*** The deadline for submissions to be considered for Andover's Green Advisory Board is Monday December 1st, 2008.

ATTACHMENT E

Energy Summary for all Buildings FY2008-FY2010	Page 1
Detail Usage for all Buildings FY2008-FY2010	Page 2
Street Light Usage Report FY2008-FY2010	Page 5
Energy Reduction from Baseline through FY2009	Page 7
Street Light Reduction Plan	Page 8

Energy Summary for all Buildings FY2008-FY2010

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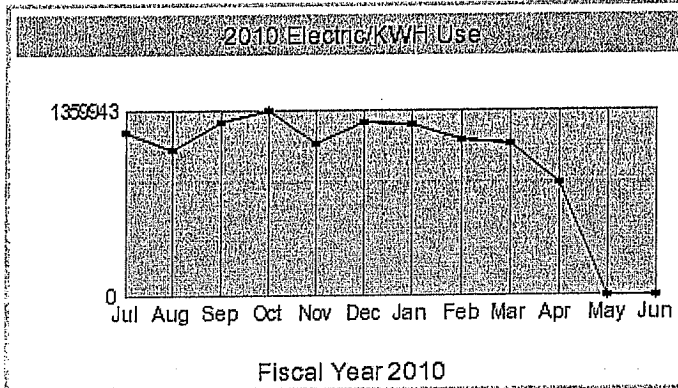
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Welcome Maria Maggio!
Town of Andover

Fiscal YTD Use Summary	2008	2009	
Diesel Fuel	42,763.60	44,015.50	Gal.
Electric	15,668,127.00	14,413,097.00	KWH
Fuel Oil	134,187.00	19,875.39	Gal.
Natural Gas	423,727.11	601,610.00	Therms
Unleaded Gas	76,682.31	77,643.70	Gal.
Other Utility -2	0.00	0.00	Energy C

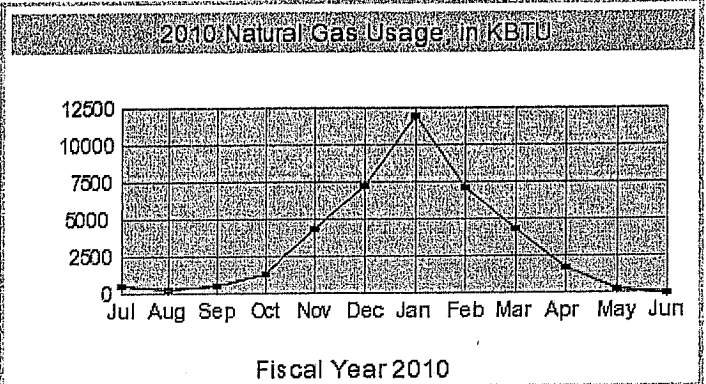
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Detail Usage for all Buildings FY2008-FY2010

Town of Andover

Global Building Use and Cost by Utility Type [GR06]

Months: All
Years: 2010, 2009, 2008
All Building Types
All Utility Types

Building	Utility Type	2008	2009	2010
Abbott Well	Electric (KWH)	10,152 KWH	8,954 KWH	3,478 KWH
	Abbott Well Subtotal	\$1,768.60	\$1,519.58	\$593.36
Andover High School	Electric (KWH)	2,149,500 KWH	1,865,425 KWH	1,442,347 KWH
	Natural Gas (Therms)	17,167 Therms	82,518 Therms	35,958 Therms
	Fuel Oil (Gal.)	54,964 Gal.	0 Gal.	0 Gal.
	Andover High School Subtotal	\$520,624.27	\$427,785.36	\$355,820.95
Auto Fuel - water	Diesel Fuel (Gal.)	6,005 Gal.	6,066 Gal.	4,063 Gal.
	Unleaded Gas (Gal.)	9,502 Gal.	8,497 Gal.	6,372 Gal.
	Auto Fuel - water Subtotal	\$44,022.34	\$32,796.82	\$23,846.96
Auto Fuel -other	Unleaded Gas (Gal.)	4,243 Gal.	4,372 Gal.	3,654 Gal.
	Auto Fuel -other Subtotal	\$11,388.90	\$9,973.38	\$7,992.62
Auto Fuel DPW	Diesel Fuel (Gal.)	23,772 Gal.	22,416 Gal.	15,219 Gal.
	Unleaded Gas (Gal.)	4,592 Gal.	5,525 Gal.	3,742 Gal.
	Auto Fuel DPW Subtotal	\$84,946.91	\$83,850.17	\$44,616.01
Auto Fuel Fire	Diesel Fuel (Gal.)	12,260 Gal.	14,047 Gal.	10,973 Gal.
	Unleaded Gas (Gal.)	4,005 Gal.	3,050 Gal.	1,750 Gal.
	Auto Fuel Fire Subtotal	\$49,129.17	\$42,582.14	\$29,676.72
Auto Fuel Police	Diesel Fuel (Gal.)	12 Gal.	11 Gal.	0 Gal.
	Unleaded Gas (Gal.)	41,260 Gal.	42,831 Gal.	31,185 Gal.
	Auto Fuel Police Subtotal	\$111,318.01	\$89,767.36	\$69,372.53
Auto Fuel-P&F	Diesel Fuel (Gal.)	4,148 Gal.	4,400 Gal.	2,976 Gal.
	Unleaded Gas (Gal.)	20,109 Gal.	20,091 Gal.	14,006 Gal.
	Auto Fuel-P&F Subtotal	\$66,632.77	\$55,506.70	\$38,505.58
Ballardvale Fire Station	Electric (KWH)	19,899 KWH	18,081 KWH	13,293 KWH
	Natural Gas (Therms)	2,418 Therms	2,476 Therms	2,121 Therms
	Ballardvale Fire Station Subtotal	\$3,367.08	\$2,949.85	\$2,039.92
Bancroft	Electric (KWH)	5,800 KWH	12,400 KWH	12,800 KWH
	Fuel Oil (Gal.)	145 Gal.	704 Gal.	1,111 Gal.
	Bancroft Subtotal	\$1,221.40	\$2,015.29	\$2,010.31
Bancroft Elementary School	Electric (KWH)	384,000 KWH	390,240 KWH	312,640 KWH
	Natural Gas (Therms)	30,120 Therms	32,360 Therms	13,866 Therms
	Bancroft Elementary School Subtotal	\$46,337.63	\$45,449.36	\$35,039.67
Beacon Street	Electric (KWH)	132 KWH	129 KWH	96 KWH
	Beacon Street Subtotal	\$127.04	\$127.42	\$107.50
Beacon, 62	Electric (KWH)	2,515 KWH	0 KWH	0 KWH
	Beacon, 62 Subtotal	\$644.35	\$0.00	\$0.00
Bridle Path	Electric (KWH)	2,704 KWH	3,285 KWH	2,535 KWH
	Bridle Path Subtotal	\$550.29	\$652.01	\$499.11
Chestnut Street	Electric (KWH)	2 KWH	1 KWH	0 KWH
	Chestnut Street Subtotal	\$103.80	\$107.36	\$93.45
Dale street	Electric (KWH)	4,022 KWH	3,305 KWH	1,721 KWH
	Dale street Subtotal	\$792.21	\$535.69	\$383.00
Doherty Middle School	Electric (KWH)	587,200 KWH	579,520 KWH	371,360 KWH
	Natural Gas (Therms)	51,930 Therms	52,408 Therms	19,887 Therms
	Doherty Middle School Subtotal	\$91,784.00	\$83,702.61	\$54,336.72
Elm & Main St	Electric (KWH)	10,831 KWH	11,028 KWH	1,472 KWH
	Elm & Main St Subtotal	\$2,042.24	\$1,993.03	\$481.30
Fishbrook	Electric (KWH)	1,658,800 KWH	963,600 KWH	620,200 KWH
	Fishbrook Subtotal	\$234,189.14	\$180,744.55	\$94,193.93
High Plain Elementary/ Wood Hill Middle School	Electric (KWH)	1,065,000 KWH	1,054,500 KWH	755,250 KWH
	Natural Gas (Therms)	58,350 Therms	66,862 Therms	27,310 Therms
	Fuel Oil (Gal.)	280 Gal.	0 Gal.	0 Gal.
	High Plain Elementary/ Wood Hill Middle School Subtotal	\$169,811.05	\$155,331.09	\$122,736.44
High Plain Road	Electric (KWH)	1,880 KWH	0 KWH	0 KWH
	High Plain Road Subtotal	\$379.75	\$0.00	\$0.00
Kathleen	Electric (KWH)	1,968 KWH	1,806 KWH	2,174 KWH
	Kathleen Subtotal	\$429.31	\$397.67	\$430.86
Launching	Electric (KWH)	2,634 KWH	5,222 KWH	2,539 KWH
	Launching Subtotal	\$548.95	\$908.04	\$497.13
Lighting Town Grounds	Electric (KWH)	24,218 KWH	21,387 KWH	16,051 KWH
	Lighting Town Grounds Subtotal	\$4,827.49	\$4,255.09	\$2,958.94
Lovejoy	Electric (KWH)	153 KWH	160 KWH	89 KWH
	Lovejoy Subtotal	\$128.84	\$141.43	\$106.55
Lovejoy Road, Sanborn	Electric (KWH)	394 KWH	0 KWH	0 KWH
	Lovejoy Road, Sanborn Subtotal	\$105.47	\$0.00	\$0.00

Lovejoy1	Electric (KWH)	198 KWH	\$136.22	185 KWH	\$136.29	117 KWH	\$110.64
	Lovejoy1 Subtotal		\$136.22		\$136.29		\$110.64
Lowell St Sign	Electric (KWH)	427 KWH	\$174.22	84 KWH	\$130.02	355 KWH	\$145.80
	Lowell St Sign Subtotal		\$174.22		\$130.02		\$145.80
Main and Chestnut	Electric (KWH)	0 KWH	\$0.00	13,859 KWH	\$2,779.28	25,827 KWH	\$3,952.94
	Main and Chestnut Subtotal		\$0.00		\$2,779.28		\$3,952.94
Main St, 20	Electric (KWH)	15,671 KWH	\$3,200.35	15,822 KWH	\$3,010.35	13,732 KWH	\$2,428.48
	Main St, 20 Subtotal		\$3,200.35		\$3,010.35		\$2,428.48
Memorial Hall Library	Electric (KWH)	681,600 KWH	\$104,832.73	689,600 KWH	\$103,586.56	501,800 KWH	\$65,741.26
	Natural Gas (Therms)	18,683 Therms	\$27,951.78	19,371 Therms	\$28,151.64	13,818 Therms	\$25,121.78
	Memorial Hall Library Subtotal		\$132,784.51		\$131,738.20		\$90,863.04
Morningside	Electric (KWH)	38,815 KWH	\$6,666.64	39,321 KWH	\$6,727.34	28,210 KWH	\$4,900.10
	Natural Gas (Therms)	0 Therms	\$208.93	11 Therms	\$229.01	73 Therms	\$248.90
	Morningside Subtotal		\$6,875.57		\$6,956.35		\$5,149.00
Municipal Park	Electric (KWH)	1,899 KWH	\$345.35	2,726 KWH	\$542.14	2,367 KWH	\$442.52
	Municipal Park Subtotal		\$345.35		\$542.14		\$442.52
New Bancroft	Electric (KWH)	576,800 KWH	\$86,061.69	557,600 KWH	\$80,552.90	401,400 KWH	\$63,140.15
	New Bancroft Subtotal		\$86,061.69		\$80,552.90		\$63,140.15
Osgood	Electric (KWH)	8,259 KWH	\$1,637.62	874 KWH	\$182.57	0 KWH	\$0.80
	Osgood Subtotal		\$1,637.62		\$182.57		\$0.80
Pearson Street	Electric (KWH)	2,419 KWH	\$613.53	3,731 KWH	\$877.77	0 KWH	\$0.00
	Natural Gas (Therms)	955 Therms	\$1,661.77	1,402 Therms	\$2,395.31	0 Therms	\$0.00
	Pearson Street Subtotal		\$2,275.30		\$3,273.08		\$0.00
Prospect	Electric (KWH)	11,173 KWH	\$2,104.14	8,215 KWH	\$1,440.17	6,883 KWH	\$1,234.05
	Prospect Subtotal		\$2,104.14		\$1,440.17		\$1,234.05
Public Safety Center	Electric (KWH)	907,300 KWH	\$127,192.88	863,900 KWH	\$113,666.60	582,200 KWH	\$72,163.18
	Natural Gas (Therms)	63,360 Therms	\$93,711.75	61,623 Therms	\$86,341.92	44,376 Therms	\$62,284.63
	Public Safety Center Subtotal		\$220,904.63		\$200,008.52		\$134,447.81
Recreation Park	Electric (KWH)	23,566 KWH	\$4,290.23	18,261 KWH	\$3,299.03	0 KWH	\$0.00
	Recreation Park Subtotal		\$4,290.23		\$3,299.03		\$0.00
Red Spring Road	Electric (KWH)	61,778 KWH	\$10,231.75	42,428 KWH	\$6,826.16	29,248 KWH	\$4,472.51
	Natural Gas (Therms)	2,781 Therms	\$4,635.48	3,003 Therms	\$4,753.22	3,018 Therms	\$4,540.88
	Red Spring Road Subtotal		\$14,867.23		\$11,579.38		\$9,013.39
Robandy	Electric (KWH)	6,468 KWH	\$1,171.53	4,333 KWH	\$806.94	5,493 KWH	\$958.79
	Robandy Subtotal		\$1,171.53		\$806.94		\$958.79
Salem Street	Electric (KWH)	8,807 KWH	\$1,715.12	10,683 KWH	\$1,832.42	9,196 KWH	\$1,523.12
	Natural Gas (Therms)	1 Therms	\$206.99	16 Therms	\$216.24	39 Therms	\$203.25
	Salem Street Subtotal		\$1,922.11		\$2,048.66		\$1,726.37
Sanborn Elementary School	Electric (KWH)	221,400 KWH	\$35,899.60	212,880 KWH	\$34,998.20	173,404 KWH	\$32,527.89
	Natural Gas (Therms)	29,028 Therms	\$45,011.71	33,210 Therms	\$46,619.57	28,055 Therms	\$39,469.71
	Sanborn Elementary School Subtotal		\$80,911.31		\$81,617.77		\$71,997.60
Shawsheen	Electric (KWH)	108 KWH	\$100.64	108 KWH	\$100.39	90 KWH	\$85.11
	Shawsheen Subtotal		\$100.64		\$100.39		\$85.11
Shawsheen Elementary School	Electric (KWH)	126,248 KWH	\$21,977.96	117,653 KWH	\$19,732.77	93,314 KWH	\$15,475.43
	Natural Gas (Therms)	1,354 Therms	\$2,186.00	22,891 Therms	\$36,594.14	18,013 Therms	\$29,425.33
	Fuel Oil (Gal.)	14,264 Gal.	\$40,845.00	0 Gal.	\$0.00	0 Gal.	\$0.00
	Shawsheen Elementary School Subtotal		\$65,008.96		\$56,326.91		\$44,900.76
Shawsheen Village	Electric (KWH)	570,400 KWH	\$87,276.85	558,000 KWH	\$82,776.71	494,400 KWH	\$78,814.97
	Fuel Oil (Gal.)	0 Gal.	\$0.00	992 Gal.	\$1,585.50	1,501 Gal.	\$3,313.89
	Shawsheen Village Subtotal		\$87,276.85		\$84,362.21		\$82,128.86
Shawsheen1	Electric (KWH)	132 KWH	\$103.78	132 KWH	\$104.24	100 KWH	\$88.20
	Shawsheen1 Subtotal		\$103.78		\$104.24		\$88.20
Sherborne	Electric (KWH)	126 KWH	\$126.12	124 KWH	\$126.64	109 KWH	\$109.37
	Sherborne Subtotal		\$126.12		\$126.64		\$109.37
Snowberry	Electric (KWH)	2,379 KWH	\$496.87	3,021 KWH	\$600.02	1,486 KWH	\$325.64
	Snowberry Subtotal		\$496.87		\$600.02		\$325.64
Snowberry Street Light	Electric (KWH)	36,127 KWH	\$16,564.84	36,267 KWH	\$16,300.13	31,558 KWH	\$13,883.07
	Snowberry Street Light Subtotal		\$16,564.84		\$16,300.13		\$13,883.07
So Main,360	Electric (KWH)	3,493 KWH	\$681.71	3,355 KWH	\$683.60	2,011 KWH	\$431.93
	So Main,360 Subtotal		\$681.71		\$683.60		\$431.93
South Elementary School	Electric (KWH)	328,920 KWH	\$56,017.89	334,880 KWH	\$55,750.42	236,160 KWH	\$36,992.24
	Natural Gas (Therms)	932 Therms	\$1,757.28	14,905 Therms	\$35,927.83	11,281 Therms	\$32,095.95
	Fuel Oil (Gal.)	16,824 Gal.	\$49,471.77	2,000 Gal.	\$3,381.33	0 Gal.	\$0.00
	South Elementary School Subtotal		\$107,246.94		\$95,059.58		\$69,088.19
Spring Grove Cemetery	Electric (KWH)	16,967 KWH	\$2,990.70	15,329 KWH	\$2,629.90	11,930 KWH	\$1,903.44
	Fuel Oil (Gal.)	3,222 Gal.	\$9,226.18	3,288 Gal.	\$5,202.68	2,964 Gal.	\$6,582.88
	Spring Grove Cemetery Subtotal		\$12,216.88		\$7,832.58		\$8,486.32
Sugarbush	Electric (KWH)	3,121 KWH	\$616.10	3,736 KWH	\$699.52	3,061 KWH	\$550.39
	Sugarbush Subtotal		\$616.10		\$699.52		\$550.39
Tilton	Electric (KWH)	2,368 KWH	\$494.57	2,429 KWH	\$492.53	3,864 KWH	\$667.43
	Tilton Subtotal		\$494.57		\$492.53		\$667.43
Town Hall	Electric (KWH)	1,154,571 KWH	\$256,494.36	1,152,849 KWH	\$253,855.93	785,207 KWH	\$174,826.56
	Town Hall Subtotal		\$256,494.36		\$253,855.93		\$174,826.56
Town House	Electric (KWH)	76,904 KWH	\$13,040.31	68,381 KWH	\$11,242.19	44,008 KWH	\$6,893.13
	Natural Gas (Therms)	8,958 Therms	\$13,838.25	9,584 Therms	\$14,048.07	7,983 Therms	\$10,931.30
	Town House Subtotal		\$26,878.56		\$25,290.26		\$17,824.43
Town Offices	Electric (KWH)	739,979 KWH	\$119,672.03	627,865 KWH	\$106,977.16	437,458 KWH	\$74,784.91
	Natural Gas (Therms)	19,412 Therms	\$29,027.07	19,675 Therms	\$30,082.40	20,768 Therms	\$27,146.70
	Other Utility -2 (Energy Conservation) 0 Energy Conservation		\$0.00	0 Energy Conservation	\$38,650.02	0 Energy Conservation	\$34,515.36
	Town Offices Subtotal		\$148,699.10		\$175,709.58		\$136,446.97

Tree Shop	Electric (KWH)	27,821 KWH	\$4,603.01	25,547 KWH	\$4,263.71	10,801 KWH	\$1,804.66
	Natural Gas (Therms)	4,036 Therms	\$6,807.56	4,622 Therms	\$7,241.58	3,263 Therms	\$4,880.67
	Tree Shop Subtotal		\$11,410.57		\$11,505.29		\$6,685.33
Vehicle Maintenance	Electric (KWH)	99,670 KWH	\$16,445.17	97,142 KWH	\$15,458.00	65,959 KWH	\$10,161.02
	Natural Gas (Therms)	12,854 Therms	\$19,528.13	13,028 Therms	\$18,794.15	9,703 Therms	\$12,743.01
	Vehicle Maintenance Subtotal		\$35,973.30		\$34,252.15		\$22,904.03
Water Shop	Natural Gas (Therms)	3,129 Therms	\$5,226.13	3,379 Therms	\$5,347.83	2,811 Therms	\$4,540.22
	Water Shop Subtotal		\$5,226.13		\$5,347.83		\$4,540.22
Water Treatment - Filter	Natural Gas (Therms)	0 Therms	\$0.00	2,391 Therms	\$4,320.64	2,238 Therms	\$4,065.96
	Water Treatment - Filter Subtotal		\$0.00		\$4,320.64		\$4,065.96
Water Treatment Plant	Electric (KWH)	4,513,600 KWH	\$685,045.93	4,411,209 KWH	\$644,302.71	3,301,600 KWH	\$468,289.98
	Natural Gas (Therms)	37,791 Therms	\$55,941.53	39,554 Therms	\$55,349.66	34,928 Therms	\$49,620.33
	Fuel Oil (Gal.)	3,307 Gal.	\$8,542.16	992 Gal.	\$1,585.50	0 Gal.	\$0.00
	Water Treatment Plant Subtotal		\$749,529.62		\$701,237.87		\$517,890.31
Water Treatment, Garage	Natural Gas (Therms)	3,642 Therms	\$6,005.62	4,992 Therms	\$7,780.17	3,222 Therms	\$5,100.37
	Water Treatment, Garage Subtotal		\$6,005.62		\$7,780.17		\$5,100.37
West Andover Fire Station	Electric (KWH)	37,461 KWH	\$2,266.85	39,155 KWH	\$6,299.14	27,684 KWH	\$4,226.26
	Natural Gas (Therms)	4,089 Therms	\$6,758.13	4,031 Therms	\$6,434.16	3,523 Therms	\$5,135.40
	West Andover Fire Station Subtotal		\$9,024.98		\$12,733.30		\$9,361.66
West Elementary School	Electric (KWH)	495,340 KWH	\$80,419.49	505,500 KWH	\$75,435.94	435,900 KWH	\$64,131.33
	Natural Gas (Therms)	59,337 Therms	\$91,901.14	66,007 Therms	\$92,900.96	57,221 Therms	\$80,371.81
	West Elementary School Subtotal		\$172,320.63		\$168,336.90		\$144,503.14
West Middle School	Electric (KWH)	391,160 KWH	\$65,511.00	336,240 KWH	\$53,986.88	261,920 KWH	\$39,487.53
	Natural Gas (Therms)	3,234 Therms	\$5,560.34	50,531 Therms	\$77,070.53	25,615 Therms	\$70,147.57
	Fuel Oil (Gal.)	41,181 Gal.	\$119,271.00	11,900 Gal.	\$23,565.13	0 Gal.	\$0.00
	Other Utility -2 (Energy Conservation)	0 Energy Conservation	\$0.00	0 Energy Conservation	\$0.00	0 Energy Conservation	\$2,967.50
	West Middle School Subtotal		\$180,342.34		\$154,602.54		\$112,602.60
Whittier Ct	Electric (KWH)	492 KWH	\$116.33	0 KWH	\$0.00	0 KWH	\$0.00
	Whittier Ct Subtotal		\$116.33		\$0.00		\$0.00
Woburn St	Electric (KWH)	135 KWH	\$125.87	134 KWH	\$128.24	97 KWH	\$107.70
	Woburn St Subtotal		\$125.87		\$128.24		\$107.70
Woburn St1	Electric (KWH)	108 KWH	\$121.48	117 KWH	\$123.92	77 KWH	\$104.76
	Woburn St1 Subtotal		\$121.48		\$123.92		\$104.76
Woburn St; South School	Electric (KWH)	15,714 KWH	\$3,722.12	15,871 KWH	\$3,577.41	13,774 KWH	\$2,893.85
	Woburn St; South School Subtotal		\$3,722.12		\$3,577.41		\$2,893.85
Woburn Street	Electric (KWH)	910 KWH	\$253.54	2,811 KWH	\$525.40	1,572 KWH	\$321.46
	Woburn Street Subtotal		\$253.54		\$525.40		\$321.46
Wood Hill	Electric (KWH)	3,172 KWH	\$653.69	2,065 KWH	\$432.95	1,173 KWH	\$287.95
	Wood Hill Subtotal		\$653.69		\$432.95		\$287.95
Group Subtotal			\$4,165,186.46		\$3,773,862.98		\$2,826,321.69
Total Electric (KWH) All Buildings		17,145,810	\$2,730,288.07	15,783,465	\$2,464,853.76	11,603,390	\$1,802,922.32
Total Natural Gas (Therms) All Buildings		433,561	\$673,725.27	610,850	\$939,417.65	389,090	\$759,570.94
Total Fuel Oil (Gal.) All Buildings		134,187	\$393,689.88	19,875	\$36,444.39	5,577	\$12,335.15
Total Diesel Fuel (Gal.) All Buildings		46,197	\$141,935.62	46,939	\$115,563.65	33,230	\$79,071.26
Total Unleaded Gas (Gal.) All Buildings		83,711	\$225,547.62	84,365	\$178,933.51	60,709	\$134,939.16
Total Other Utility -2 (Energy Conservation) All Buildings		0	\$0.00	0	\$38,650.02	0	\$37,482.86
Total Cost All Buildings			\$4,165,186.46		\$3,773,862.98		\$2,826,321.69

Street Light Usage Report FY2008-FY2010

Town of Andover

Global Building Use and Cost by Utility Type [GR06]

Months: All
 Years: 2010, 2009, 2008
 All Building Types
 Utility Types: Electric

Building	Utility Type	2008	2009	2010
Beacon Street	Electric (KWH)	132 KWH	129 KWH	96 KWH
	Beacon Street Subtotal	\$127.04	\$127.42	\$107.50
Beacon, 62	Electric (KWH)	2,515 KWH	0 KWH	0 KWH
	Beacon, 62 Subtotal	\$644.35	\$0.00	\$0.00
Chestnut Street	Electric (KWH)	2 KWH	1 KWH	0 KWH
	Chestnut Street Subtotal	\$103.80	\$107.36	\$93.45
Elm & Main St	Electric (KWH)	10,831 KWH	11,028 KWH	1,472 KWH
	Elm & Main St Subtotal	\$2,042.24	\$1,993.03	\$481.30
High Plain Road	Electric (KWH)	1,880 KWH	0 KWH	0 KWH
	High Plain Road Subtotal	\$379.75	\$0.00	\$0.00
Lovejoy	Electric (KWH)	153 KWH	160 KWH	89 KWH
	Lovejoy Subtotal	\$128.84	\$141.43	\$106.55
Lovejoy Road, Sanborn	Electric (KWH)	394 KWH	0 KWH	0 KWH
	Lovejoy Road, Sanborn Subtotal	\$105.47	\$0.00	\$0.00
Lovejoy1	Electric (KWH)	198 KWH	185 KWH	117 KWH
	Lovejoy1 Subtotal	\$136.22	\$136.29	\$110.64
Lowell St Sign	Electric (KWH)	427 KWH	84 KWH	355 KWH
	Lowell St Sign Subtotal	\$174.22	\$130.02	\$145.80
Main and Chestnut	Electric (KWH)	0 KWH	13,859 KWH	25,827 KWH
	Main and Chestnut Subtotal	\$0.00	\$2,779.28	\$3,952.94
Main St, 20	Electric (KWH)	15,671 KWH	15,822 KWH	13,732 KWH
	Main St, 20 Subtotal	\$3,200.35	\$3,010.35	\$2,428.48
Municipal Park	Electric (KWH)	1,899 KWH	2,726 KWH	2,367 KWH
	Municipal Park Subtotal	\$345.35	\$542.14	\$442.52
Shawsheen	Electric (KWH)	108 KWH	108 KWH	90 KWH
	Shawsheen Subtotal	\$100.64	\$100.39	\$85.11
Shawsheen1	Electric (KWH)	132 KWH	132 KWH	100 KWH
	Shawsheen1 Subtotal	\$103.78	\$104.24	\$88.20
Sherborne	Electric (KWH)	126 KWH	124 KWH	109 KWH
	Sherborne Subtotal	\$126.12	\$126.64	\$109.37
Snowberry Street Light	Electric (KWH)	36,127 KWH	36,267 KWH	31,558 KWH
	Snowberry Street Light Subtotal	\$16,564.84	\$16,300.13	\$13,883.07
So Main,360	Electric (KWH)	3,493 KWH	3,355 KWH	2,011 KWH
	So Main,360 Subtotal	\$681.71	\$683.60	\$431.93
Town Hall	Electric (KWH)	1,154,571 KWH	1,152,849 KWH	785,207 KWH
		\$256,494.36	\$253,855.93	\$174,826.56

	Town Hall Subtotal		\$256,494.36		\$253,855.93		\$174,826.56
Whittier Ct	Electric (KWH)	492 KWH	\$116.33	0 KWH	\$0.00	0 KWH	\$0.00
	Whittier Ct Subtotal		\$116.33		\$0.00		\$0.00
Woburn St	Electric (KWH)	135 KWH	\$125.87	134 KWH	\$128.24	97 KWH	\$107.70
	Woburn St Subtotal		\$125.87		\$128.24		\$107.70
Woburn St1	Electric (KWH)	108 KWH	\$121.48	117 KWH	\$123.92	77 KWH	\$104.76
	Woburn St1 Subtotal		\$121.48		\$123.92		\$104.76
Woburn St; South School	Electric (KWH)	15,714 KWH	\$3,722.12	15,871 KWH	\$3,577.41	13,774 KWH	\$2,893.85
	Woburn St; South School Subtotal		\$3,722.12		\$3,577.41		\$2,893.85
Group Subtotal			<u>\$285,544.88</u>		<u>\$283,967.82</u>		<u>\$200,399.73</u>
Total Electric (KWH) All Buildings		1,245,108	\$285,544.88	1,252,951	\$283,967.82	877,078	\$200,399.73
Total Cost All Buildings			\$285,544.88		\$283,967.82		\$200,399.73

Energy Reduction from Baseline

Andover BTU Conversion							
Fiscal YTD Summary	BTU conversion chart	2008		2008	2009		2009
				BTUs			BTUs
Diesel Fuel	139,000	27,520.80	Gal.	3,825,391,200	29,634.60	Gal.	4,119,209,400.00
Electric	3,412	10,468,644.00	KWH	35,719,013,328	9,430,296.00	KWH	32,176,169,952.00
Fuel Oil	139,000	72,802.00	Gal.	10,119,478,000	18,422.09	Gal.	2,560,670,510.00
Natural Gas	100,000	199,567.00	Therms	19,956,700,000	254,540.00	Therms	25,454,000,000.00
Unleaded Gas	124,000	49,259.40	Gal.	6,108,165,600	50,256.40	Gal.	6,231,793,600.00
Other Utility -2		0	Energy C		0.00	Energy C	
				75,728,748,128			70,541,843,462.00
Percentage Reduction from Baseline Year	6.85%						

Street Lighting Reduction Plan

POLE #	STREET NAME	POLE #	STREET NAME	POLE #	STREET NAME
7917	BANNISTER ROAD	4203	CANTERBURY STREET	6932	CINDY LANE
2834	CLARK ROAD	4588	FOSTERS POND ROAD	1866	HIGH STREET
2846	CLARK ROAD	4593	FOSTERS POND ROAD	1869	HIGH STREET
2850	CLARK ROAD	4596	FOSTERS POND ROAD	1890	HIGH STREET
8354	CONNECTOR ROAD	4599	FOSTERS POND ROAD	1893	HIGH STREET
4397	COUNTY ROAD	8130	FULTON ROAD	1897	HIGH STREET
4484	COUNTY ROAD	8132	FULTON ROAD	1905	HIGH STREET
7892	CRESTWOOD DRIVE	8243	GEMINI CIRCLE	3333	HIGH STREET
7894	CRESTWOOD DRIVE	4384	GEORGE STREET	2701	HIGH VALE LANE
7896	CRESTWOOD DRIVE	7380	GLEN STREET	2149	HIGHLAND AVENUE
7898	CRESTWOOD DRIVE	4184	GOULD ROAD	2117	HIGHLAND ROAD
1072	CUBA STREET	4186	GOULD ROAD	2133	HIGHLAND ROAD
1074	CUBA STREET	4188	GOULD ROAD	2142	HIGHLAND ROAD
1077	CUBA STREET	4192	GOULD ROAD	2154	HIGHLAND ROAD
4527	CUTLER ROAD	6058	GOULD ROAD	6767	HOLLY TERRACE
5747	CUTLER ROAD	6059	GOULD ROAD	2295	HOLT ROAD
5749	CUTLER ROAD	6276	GOULD ROAD	2303	HOLT ROAD
5754	CUTLER ROAD	6476	GOULD ROAD	2314	HOLT ROAD
5756	CUTLER ROAD	6653	GOULD ROAD	3873	HOLT ROAD
7038	CYR CIRCLE	3321	GRAY ROAD	5396	HOLT ROAD
7039	CYR CIRCLE	4151	GRAY ROAD	0752	ICELAND ROAD
7044	CYR CIRCLE	7586	GRAY ROAD	0002	IVANHOE LANE
2856	DASCOMB ROAD	4771	GREENWOOD ROAD	0005	IVANHOE LANE
2866	DASCOMB ROAD	6199	GREENWOOD ROAD	7679	IVY LANE
2870	DASCOMB ROAD	6332	GREENWOOD ROAD	0002	JOSEPH STREET
2875	DASCOMB ROAD	7032	GREENWOOD ROAD	5781	JUDSON ROAD
2881	DASCOMB ROAD	7229	GREENWOOD ROAD	5916	JUNIPER ROAD
2883	DASCOMB ROAD	7231	GREENWOOD ROAD	7088	JUNIPER ROAD
6113	DASCOMB ROAD	7235	GREENWOOD ROAD	7096	JUNIPER ROAD
6709	DASCOMB ROAD	7239	GREENWOOD ROAD	8179	KATHLEEN DRIVE
6711	DASCOMB ROAD	1695	HAGGETTS POND ROAD	8184	KATHLEEN DRIVE
6713	DASCOMB ROAD	1696	HAGGETTS POND ROAD	8266	KATHLEEN DRIVE
8309	DEAN CIRCLE	7377	HAVEN ROAD	7877	LAUNCHING ROAD
8312	DEAN CIRCLE	928	HAVERHILL STREET	8151	LAUNCHING ROAD
8049	DEERBERRY LANE	931	HAVERHILL STREET	8248	LAUNCHING ROAD
8051	DEERBERRY LANE	932	HAVERHILL STREET	8250	LAUNCHING ROAD
8053	DEERBERRY LANE	7257	HAWTHORNE CIRCLE	8252	LAUNCHING ROAD
0003	DONNA ROAD	7259	HAWTHORNE CIRCLE	1121	LEWIS STREET
1980	DUFTON ROAD	5714	HENDERSON AVENUE	1123	LEWIS STREET
1984	DUFTON ROAD	4351	HIGH PLAIN ROAD	1124	LEWIS STREET
5384	DUFTON ROAD	4386	HIGH PLAIN ROAD	4639	LINCOLN CIRCLE
1780	ELM STREET	4681	HIGH PLAIN ROAD	6223	LINDA ROAD
1783	ELM STREET	5457	HIGH PLAIN ROAD	6258	LINDA ROAD
1789	ELM STREET	5830	HIGH PLAIN ROAD	5671	LOCKWAY ROAD
1801	ELM STREET	6109	HIGH PLAIN ROAD	5096	LOVEJOY ROAD
8209	FISKE STREET	6733	HIGH PLAIN ROAD	5600	LOVEJOY ROAD
3445	FLEMING AVENUE	6735	HIGH PLAIN ROAD	6466	LOVEJOY ROAD
6022	FLINT CIRCLE	6737	HIGH PLAIN ROAD	6560	LOVEJOY ROAD
6060	FLINT CIRCLE	8293	HIGH PLAIN ROAD	6691	LOVEJOY ROAD
8028	FOREST HILL DRIVE	1858	HIGH STREET	3159	LOWELL JCT ROAD

POLE #	STREET NAME	POLE #	STREET NAME	POLE #	STREET NAME
8034	FOREST HILL DRIVE	1862	HIGH STREET	3175	LOWELL JCT ROAD
5180	LOWELL JCT ROAD	1937	MAPLE AVENUE	1488	PASHO STREET
5234	LOWELL JCT ROAD	8270	MARIE DRIVE	7125	PATRICIA CIRCLE
463	LOWELL STREET	8165	MARIGOLD LANE	0002	PAULORNETTE CIRCLE
465	LOWELL STREET	6508	MARION AVENUE	0004	PAULORNETTE CIRCLE
467	LOWELL STREET	0003	MARLAND STREET	1366	PHILLIPS STREET
477	LOWELL STREET	0006	MARLAND STREET	1369	PHILLIPS STREET
479	LOWELL STREET	0008	MARLAND STREET	1375	PHILLIPS STREET
481	LOWELL STREET	5545	MARWOOD DRIVE	7578	PILGRIM DRIVE
483	LOWELL STREET	6121	MARY LOU LANE	1460	PINE STREET
493	LOWELL STREET	6162	MARY LOU LANE	1463	PINE STREET
495	LOWELL STREET	7303	MAYFLOWER CIRCLE	1466	PINE STREET
501	LOWELL STREET	7304	MAYFLOWER CIRCLE	1468	PINE STREET
503	LOWELL STREET	7305	MAYFLOWER CIRCLE	1472	PINE STREET
506	LOWELL STREET	7308	MAYFLOWER CIRCLE	6280	PINECREST ROAD
509	LOWELL STREET	7310	MAYFLOWER CIRCLE	6282	PINECREST ROAD
511	LOWELL STREET	7185	MEADOWBROOK DRIVE	0006	PIONEER CIRCLE
513	LOWELL STREET	7186	MEADOWBROOK DRIVE	0004	POMEROY ROAD
570	LOWELL STREET	7319	MILES CIRCLE	7330	POPLAR TERRACE
603	LOWELL STREET	8149	MITTON CIRCLE	7332	POPLAR TERRACE
632	LOWELL STREET	6	MORNINGSIDE DRIVE	2487	PORTER ROAD
635	LOWELL STREET	8	MORNINGSIDE DRIVE	2498	PORTER ROAD
647	LOWELL STREET	6811	NANCY CIRCLE	4517	PRINCETON AVENUE
651	LOWELL STREET	0002	NOB HILL CIRCLE	4518	PRINCETON AVENUE
660	LOWELL STREET	5	NORTH STREET	2333	PROSPECT ROAD
663	LOWELL STREET	14	NORTH STREET	3869	PROSPECT ROAD
667	LOWELL STREET	17	NORTH STREET	4658	PROSPECT ROAD
671	LOWELL STREET	20	NORTH STREET	4661	PROSPECT ROAD
1408	LOWELL STREET	23	NORTH STREET	7193	RANDON LANE
1413	LOWELL STREET	27	NORTH STREET	7195	RANDON LANE
5614	LOWELL STREET	29	NORTH STREET	7868	RASMUSSEN CIRCLE
5616	LOWELL STREET	32	NORTH STREET	3381	RATTLESNAKE HILL RD
5618	LOWELL STREET	36	NORTH STREET	3837	RATTLESNAKE HILL RD
5620	LOWELL STREET	44	NORTH STREET	3839	RATTLESNAKE HILL RD
5888	LUCERNE DRIVE	5981	NUTMEG LANE	4560	RATTLESNAKE HILL RD
5949	LUCERNE DRIVE	5982	NUTMEG LANE	4573	RATTLESNAKE HILL RD
6025	LUCERNE DRIVE	0003	OAK STREET	7514	REGIS ROAD
6028	LUCERNE DRIVE	2227	ORCHARD STREET	7529	REGIS ROAD
6151	LUCERNE DRIVE	5405	ORCHARD STREET	7531	REGIS ROAD
6154	LUCERNE DRIVE	6438	ORIOLE DRIVE	6351	RENNIE DRIVE
1186	LUPINE ROAD	6441	ORIOLE DRIVE	6354	RENNIE DRIVE
1191	LUPINE ROAD	6444	ORIOLE DRIVE	2690	RESERVATION ROAD
1197	LUPINE ROAD	6446	ORIOLE DRIVE	2692	RESERVATION ROAD
1199	LUPINE ROAD	6449	ORIOLE DRIVE	5560	RESERVATION ROAD
2960	MAIN STREET	3768	OSGOOD STREET	5561	RESERVATION ROAD
2965	MAIN STREET	3777	OSGOOD STREET	87	RIVER ROAD
2968	MAIN STREET	4407	OSGOOD STREET	92	RIVER ROAD
3106	MAIN STREET	4418	OSGOOD STREET	97	RIVER ROAD
3405	MAIN STREET	4478	OSGOOD STREET	102	RIVER ROAD
4366	MAIN STREET	8200	PARTRIDGE HILL ROAD	117	RIVER ROAD

POLE #	STREET NAME	POLE #	STREET NAME	POLE #	STREET NAME
1933	MAPLE AVENUE	8203	PARTRIDGE HILL ROAD	127	RIVER ROAD
2710	RIVER STREET	6482	SHERRY DRIVE	4348	STRATFORD ROAD
2719	RIVER STREET	5780	SHIRLEY ROAD	6337	STRAWBERRY HILL ROA
2726	RIVER STREET	0003	SNOWBERRY ROAD	6345	STRAWBERRY HILL ROA
4553	RIVER STREET	2972	SOUTH MAIN STREET	1605	SUMMER STREET
5238	RIVER STREET	2988	SOUTH MAIN STREET	1616	SUMMER STREET
6432	RIVERINA ROAD	2999	SOUTH MAIN STREET	1623	SUMMER STREET
5592	ROBANDY ROAD	3001	SOUTH MAIN STREET	1626	SUMMER STREET
8318	ROCK-O-DUNDEE RD	3004	SOUTH MAIN STREET	5398	SUMMER STREET
2244	ROCKY HILL ROAD	3006	SOUTH MAIN STREET	5902	SUMMER STREET
2248	ROCKY HILL ROAD	3010	SOUTH MAIN STREET	5905	SUMMER STREET
2252	ROCKY HILL ROAD	3013	SOUTH MAIN STREET	6169	SUNCREST ROAD
2256	ROCKY HILL ROAD	3016	SOUTH MAIN STREET	6171	SUNCREST ROAD
2261	ROCKY HILL ROAD	3018	SOUTH MAIN STREET	6286	SUNCREST ROAD
2265	ROCKY HILL ROAD	3022	SOUTH MAIN STREET	2433	SUNSET ROCK ROAD
7994	RUSSETT LANE	3025	SOUTH MAIN STREET	2447	SUNSET ROCK ROAD
7997	RUSSETT LANE	3030	SOUTH MAIN STREET	7767	TANGLEWOOD WAY NO.
6962	SAGAMORE DRIVE	3032	SOUTH MAIN STREET	7771	TANGLEWOOD WAY SO.
7244	SAGAMORE DRIVE	3041	SOUTH MAIN STREET	2746	TEWKSBURY STREET
7499	SAGAMORE DRIVE	3046	SOUTH MAIN STREET	2753	TEWKSBURY STREET
7502	SAGAMORE DRIVE	3050	SOUTH MAIN STREET	2757	TEWKSBURY STREET
2026	SALEM STREET	3052	SOUTH MAIN STREET	2760	TEWKSBURY STREET
2029	SALEM STREET	3054	SOUTH MAIN STREET	2762	TEWKSBURY STREET
2036	SALEM STREET	3062	SOUTH MAIN STREET	2764	TEWKSBURY STREET
2044	SALEM STREET	3064	SOUTH MAIN STREET	6802	THRESHER ROAD
2047	SALEM STREET	3067	SOUTH MAIN STREET	7695	TIMOTHY DRIVE
2050	SALEM STREET	3072	SOUTH MAIN STREET	8067	TIMOTHY DRIVE
2055	SALEM STREET	3074	SOUTH MAIN STREET	8069	TIMOTHY DRIVE
2069	SALEM STREET	3076	SOUTH MAIN STREET	8071	TIMOTHY DRIVE
3290	SALEM STREET	3078	SOUTH MAIN STREET	8075	TIMOTHY DRIVE
3304	SALEM STREET	3080	SOUTH MAIN STREET	7130	TOBEY LANE
3311	SALEM STREET	3084	SOUTH MAIN STREET	7131	TOBEY LANE
4401	SALEM STREET	3086	SOUTH MAIN STREET	476	UPLAND ROAD
5156	SALEM STREET	3088	SOUTH MAIN STREET	4371	VINE STREET
5158	SALEM STREET	3090	SOUTH MAIN STREET	4541	VINE STREET
5160	SALEM STREET	3093	SOUTH MAIN STREET	4543	VINE STREET
5162	SALEM STREET	3097	SOUTH MAIN STREET	5245	VIRGINIA ROAD
5164	SALEM STREET	3101	SOUTH MAIN STREET	1835	WALNUT AVENUE
7133	SANDY BROOK CIR	3106	SOUTH MAIN STREET	1445	WASHINGTON AVENUE
1260	SCHOOL STREET	4643	SPRING GROVE ROAD	1447	WASHINGTON AVENUE
1265	SCHOOL STREET	4645	SPRING GROVE ROAD	1449	WASHINGTON AVENUE
1268	SCHOOL STREET	6230	SPRING GROVE ROAD	1452	WASHINGTON AVENUE
827	SHAWSHEEN ROAD	7312	STANDISH CIRCLE	1455	WASHINGTON AVENUE
831	SHAWSHEEN ROAD	7314	STANDISH CIRCLE	2096	WATSON AVE
833	SHAWSHEEN ROAD	7315	STANDISH CIRCLE	5838	WATSON AVENUE
861	SHAWSHEEN ROAD	7317	STANDISH CIRCLE	0223	WEBSTER STREET
863	SHAWSHEEN ROAD	6124	STEVENS CIRCLE	3193	WEBSTER STREET
865	SHAWSHEEN ROAD	6126	STEVENS CIRCLE	6310	WEST PARISH DRIVE
867	SHAWSHEEN ROAD	6127	STEVENS CIRCLE	5426	WESTWIND ROAD
869	SHAWSHEEN ROAD	6128	STEVENS CIRCLE	6020	WESTWIND ROAD

POLE #	STREET NAME	POLE #	STREET NAME	POLE #	STREET NAME
873	SHAWSHEEN ROAD	2021	STONEHEDGE ROAD	5240	WHITTIER COURT
6747	WILD ROSE DRIVE				
6750	WILD ROSE DRIVE				
6761	WILD ROSE DRIVE				
7562	WILD ROSE DRIVE				
7564	WILD ROSE DRIVE				
7566	WILD ROSE DRIVE				
7568	WILD ROSE DRIVE				
7572	WILD ROSE DRIVE				
8389	WILD ROSE DRIVE				
8391	WILD ROSE DRIVE				
8393	WILD ROSE DRIVE				
2231	WILDWOOD ROAD				
2233	WILDWOOD ROAD				
2235	WILDWOOD ROAD				
2237	WILDWOOD ROAD				
4104	WILDWOOD ROAD				
4106	WILDWOOD ROAD				
4107	WILDWOOD ROAD				
8044	WINTERGREEN CIR				
8046	WINTERGREEN CIR				
2526	WOBURN STREET				
3738	WOBURN STREET				
3740	WOBURN STREET				
7480	WOBURN STREET				
7494	WOBURN STREET				
7495	WOBURN STREET				
1947	WOLCOTT AVENUE				
1948	WOLCOTT AVENUE				
1951	WOLCOTT AVENUE				
4382	YALE ROAD				
6611	YORK STREET				
6617	YORK STREET				

** 626 lights are estimated to be shut off

**Pole numbers and total number of lights are subject to change due to discrepancies and duplications in information we may have received from National Grid